**NATURAL RESOURCES CONSERVATION SERVICE**
**CONSERVATION PRACTICE STANDARD AND SPECIFICATION**

# IRRIGATION PIT OR REGULATING RESERVOIR

## Regulating Reservoir

**(number)**
**CODE 552B**

### DEFINITION

A small storage reservoir constructed to regulate or store a supply of water for irrigation.

### PURPOSE

Store water for relatively short periods of time to:

- Provide for regulation of fluctuating flows in streams or canals.
- Provide suitable (usually larger) irrigation streams.
- Provide for improved management of irrigation water.
- Permit more efficient use of available labor.
- Provide storage for reuse irrigation systems

### CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to sites meeting all the following:

1. The existing available irrigation stream is of such size that regulation is necessary to accomplish the intended purposes. For small irrigation wells, collection facilities are needed for efficient operation of the pumping plants.
2. Water must be stored to be used between times of rotation deliveries.
3. An adequate and dependable volume of quality water is or can be made available.
4. Topographic, geologic, and soils conditions at the site are suitable for the practical construction of a regulating reservoir having an adequate storage capacity. Pervious soils in the reservoir area can be sealed so that seepage losses are not excessive.
5. If surface runoff enters the reservoir, the contributing drainage area is or can be protected against erosion so that normal sedimentation does not materially shorten the planned life of the reservoir.

### CRITERIA

**Capacity.** Irrigation regulating reservoirs shall have a usable capacity sufficient to permit the existing irrigation stream to be regulated so that irrigation water can be applied with a reasonably high efficiency. In computing capacity requirements, due consideration shall be given, where applicable, to diverted inflow, surface runoff, precipitation, evaporation, and seepage. Excessive seepage losses shall be prevented by the use of an adapted method of sealing or lining. Additional capacity shall be provid-ed, as necessary, for sediment storage.

Capacity requirements for regulating reservoirs used as part of a system for collecting water from two or more small wells shall be based on the discharge capacities of the contributing wells and on the operation frequency of the irrigation system.

**Reservoir design.** Irrigation regulating reservoirs created by earthen dams, enclosed embankments, excavated pits, and the related appurtenant structures shall be

designed according to the conservation practice and standard for Pond (378).

Concrete and steel regulating reservoirs shall be designed according to the conservation practice standard for Trough or Tank (614).

**Inlet protection.** If the inflow enters the reservoir, the side slope of the reservoir shall be protected against erosion by the use of a pipe inlet or some other suitable struc-ture. The capacity of the inlet structure shall be no less than that required to accom-modate the maximum anticipated rate of inflow.

**Overflow protection.** An overflow protection structure having a capacity equal to or greater than the inlet stream shall be provided for an enclosed embankment. This structure may be designed and installed in combination with the outlet works.

**Outlet works.** Outlet works shall be provided for the controlled release of irrigation water. The outlet works may consist of a gated conduit through or over the embankment for gravity flow to the irrigated area or to a pumping plant.

They may also consist of a pumping plant designed to lift water directly from the reservoir basin.

The capacity of the outlet shall be no less than that required to provide the outflow rate needed to meet peak period irrigation system demands.

**VEGETATION**

Disturbed areas shall be established to grass as soon as practicable after construction. Seedbed preparation, seeding, fertilizing, and mulching shall be according to conservation practice Critical Area Planting (342). Vegetation shall be maintained and undesirable trees and brush controlled by chemical or mechanical means.

**PLANS AND SPECIFICATIONS**

Plans and specifications for irrigation regulating reservoirs shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

Earthen irrigation regulating reservoirs shall be constructed according to the construction and material specifications for Ponds (378).

Concrete and steel regulating reservoirs shall be constructed according to approved standard drawings and the associated construction and material specifications established for conservation practice standard Trough or Tank (614).

**OPERATION AND MAINTENANCE**

A written operation and maintenance plan shall be developed with input from the owner-operator. Some items to be included in the plan and checked at the site periodically and after large rains are dam topwidth and sideslopes, outlet works, condition of shoreline, and condition of vegetation.

The following University of Missouri Agricultural Guide provides information on operating and maintaining structures with embankment dams:

1548 “Maintaining Small Dams”